

AquiTron
MSR Range

AT-MC
Refrigerant Gas Sensor



DATA SHEET



aquilar
leak detection solutions

AT-MC

Refrigerant Gas Sensors



Exchangeable sensor unit including digital value processing, temperature compensation and self-monitoring the ambient air. The sensor houses a module with a terminal for the analogue output. The AT-MC calculates a linear 4–20 mA (or 2–10 V) signal out of the measurement signal and stores all relevant measured values and data of the sensor element.

DESCRIPTION

The AT-MC sensor is used for the detection of various gases. The maintenance of the device can be done either by simply exchanging the sensor or by using the integrated calibration routine directly at the main controller using the AT-MSR-PT.

FEATURES & BENEFITS

- Digital measurement value processing incl. temperature compensation
- Data / measured values in controller of the sensor unit
- Low zero-drift point
- Sensor life >3-5 year life
- High accuracy and reliability
- Hardware and software according to SIL compliant development process
- Easy maintenance and calibration by exchange of the sensor unit or by or user friendly on-site calibration
- 4–20 mA (or 2–10 V) analog output with selectable signal output for special mode, fault etc.
- Reverse polarity protected, overload and short-circuit proof
- IP65 version when mounted in the AT-MC-HA enclosure

TECHNICAL INFORMATION

Power Supply	18–29 V DC, reverse-polarity protected; 18–27 V AC (only for output signal 2–10 V)
Operating Temperature	-30°C - +60°C
Operating Humidity	15-90% RH non-condensing
Dimensions	Sensor Housing Dimensions (WxHxD) 94 x 154 x 57mm (Including Sensor)
Cable Entry	Standard 6x M20mm/25mm
Weight	30g
Housing Plastic	Polycarbonate; UL 94 V2 RAL 7032
IP Rating	IP65 when used with AT-MC-HA
Mounting	Screw mounting / M25
Wire Connection	Screw-type terminal min. 0.25 mm ² , max. 1.3 mm ² , 3-pin, 24 to 16 AWG
Analogue output signal	Proportional, overload and short-circuit proof, load ≤ 500 Ω for current signal, ≥ 50 kΩ for voltage signal 4–20 mA or 2–10 V = measuring range 3–4 mA or 1.5–2 V = underrange > 20–21.2 mA or 10–10.6 V = overrange 2 mA or 1 V = fault > 21.8 mA or 10.9 V = fault High
Gas Type/Measuring range	See Ordering Information 2000ppm Range
Sensor Element	Semi Conductor Element
Pressure Range	90–110 kPa
Oxygen Concentration	21 % (standard) 18 % minimum level
Storage Temperature	0 °C to +50 °C
Storage Time	12 months- if stored for a longer period of time then stated, we recommend checking the zero point and recalibrating if necessary
Sensor Lifetime	5 years depending on environmental conditions and servicing/calibration schedule
Calibration	Calibration Interval recommended max 12 months
Poisoning	Semiconductor sensors can be poisoned by silicone-containing substances or other catalyst poisons, up to complete loss of sensitivity. Their sensitivity is irreversibly impaired by halogen-containing compounds

ORDERING INFORMATION

8002	AT-MC-R1234YF - Remote Semi-Conductor, 20-2000ppm
8003	AT-MC-R452A - Remote Semi-Conductor, 20-2000ppm
8004	AT-MC-R513A - Remote Semi-Conductor, 20-2000ppm
8005	AT-MC-R454C - Remote Semi-Conductor, 20-2000ppm
8006	AT-MC-R455A - Remote Semi-Conductor, 20-2000ppm
8007	AT-MC-R454B - Remote Semi-Conductor, 20-2000ppm
8008	AT-MC-R1234ZE - Remote Semi-Conductor, 20-2000ppm
8009	AT-MC-1234ZD - Remote Semi-Conductor, 20-2000ppm
8010	AT-MC-R515B - Remote Semi-Conductor, 20-2000ppm
8011	AT-MC-R134A - Remote Semi-Conductor, 20-2000ppm
8012	AT-MC-R407A - Remote Semi-Conductor, 20-2000ppm
8013	AT-MC-R416A - Remote Semi-Conductor, 20-2000ppm
8014	AT-MC-R417A - Remote Semi-Conductor, 20-2000ppm
8015	AT-MC-R422A - Remote Semi-Conductor, 20-2000ppm
8016	AT-MC-R422D - Remote Semi-Conductor, 20-2000ppm
8017	AT-MC-R427A - Remote Semi-Conductor, 20-2000ppm
8018	AT-MC-R437A - Remote Semi-Conductor, 20-2000ppm
8019	AT-MC-R438A - Remote Semi-Conductor, 20-2000ppm
8020	AT-MC-R449A - Remote Semi-Conductor, 20-2000ppm
8021	AT-MC-R407F - Remote Semi-Conductor, 20-2000ppm
8022	AT-MC-R450A - Remote Semi-Conductor, 20-2000ppm
8023	AT-MC-R125 - Remote Semi-Conductor, 20-2000ppm
8024	AT-MC-R32 - Remote Semi-Conductor, 20-2000ppm
8025	AT-MC-R404A - Remote Semi-Conductor, 20-2000ppm
8026	AT-MC-R407c - Remote Semi-Conductor, 20-2000ppm
8027	AT-MC-R410A - Remote Semi-Conductor, 20-2000ppm
8028	AT-MC-R434A - Remote Semi-Conductor, 20-2000ppm
8029	AT-MC-R507A - Remote Semi-Conductor, 20-2000ppm
8030	AT-MC-R448A - Remote Semi-Conductor, 20-2000ppm
8031	AT-MC-R452B - Remote Semi-Conductor, 20-2000ppm
8032	AT-MC-R143A - Remote Semi-Conductor, 20-2000ppm

AT-MC

Refrigerant Gas Sensor



Exchangeable sensor unit including digital value processing, temperature compensation and self-monitoring the ambient air. The AT-MC Pellistor sensor houses a module with controller, analogue output and power supply. The AT-MC calculates a linear 4–20 mA (or 2–10 V) signal out of the measurement signal and stores all relevant measured values and data of the sensor element.

DESCRIPTION

The AT-MC pellistor sensor is used for the detection of combustible gases using a catalytic sensor element. Calibration is done either by exchanging the sensor unit or by using the AT-MSR-PT portable hand held tool and using the correct calibration technique directly at the system at the correct intervals.

FEATURES & BENEFITS

- Digital measurement value processing incl. temperature compensation
- Data / measured values in controller of the sensor unit
- Sensor life 5 years depending on ambient conditions and routine calibration
- High accuracy and reliability
- Hardware and software according to SIL compliant development process
- Easy maintenance and calibration by exchange of the sensor unit or by comfortable on-site calibration
- 4–20 mA (or 2–10 V) analog output with selectable signal output for special mode, fault etc.
- Reverse polarity protected, overload and short-circuit proof
- IP65 sensor head housing, IP65 protection when installed with housing

MEASURING VALUES

Gas Type	Measuring Range	Accuracy	Zero-point variation	Drift in Air	Relative Gas Density
	% LEL / ppm	± % sig.	± % LEL	< % /Month	Air=1
C3H8 (R290)	0–100 % LEL	1 (CH4)	0.5 (CH4)	2 (C3H8)	1.55

TECHNICAL INFORMATION

Power Supply	18–29 V DC, reverse-polarity protected; 18–27 V AC (only for output signal 2–10 V)
Operating Temperature	-30°C - +60°C
Operating Humidity	0-95% RH non-condensing
Dimensions	Sensor Housing Dimensions (WxHxD) 94 x 154 x 57mm (Including Sensor)
Cable Entry	Standard 6x M20mm/25mm
Weight	30g
Housing Plastic	Polycarbonate; UL 94 V2 RAL 7032
IP Rating	IP65 when used with approved housing
Mounting	Screw mounting / M25
Wire Connection	Screw-type terminal min. 0.25 mm ² , max. 1.3 mm ² , 3-pin, 24 to 16 AWG
Analogue output signal	Proportional, overload and short-circuit proof, load ≤ 500 Ω for current signal, ≥ 50 kΩ for voltage signal 4–20 mA or 2–10 V = measuring range 3–4 mA or 1.5–2 V = underrange > 20–21.2 mA or 10–10.6 V = overrange 2 mA or 1 V = fault > 21.8 mA or 10.9 V = fault High
Gas Type/Measuring Principles	R290 0-100% LEL Pellistor
Sensor Element	Pellistor Catalytic Bead Principle
Pressure Range	90–110 kPa
Oxygen Concentration	21 % (standard) 18 % minimum level
Storage Temperature	0 °C to +20 °C
Storage Time	Calibration Interval. 12 months*
Sensor Lifetime	5 years / normal ambient conditions with calibration intervals
Poisoning	Pellistor sensors can be poisoned by silicone-containing substances or other catalyst poisons up to complete loss of sensitivity.

* If stored for a longer period of time then stated, we recommend checking the zero point and recalibrating if necessary

APPROVALS

BS EN 378-1	Basic requirements, and definitions to produce eco-friendly refrigerators complying to the standard protocols.
EMC Directives 2014/30/EU	Regulation of electromagnetic compatibility of equipment
ANSI/ UL EN 61010-1	Safety reqs for electrical equipment for measurement, control, and laboratory use
CAN/CSA-C22.2 No. 61010-1	The purpose of the requirements of this standard is to ensure that hazards to the operator and the surrounding area are reduced to a tolerable level
EN 50545:2017	Electrical apparatus for the detection and measurement of toxic and combustible gases in car parks and tunnels
EN 50271	Functional safety and software reliability in gas detection systems
EN 45544-1, -3	Workplace atmospheres. Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours
EN IEC 62990-1 Type SM	Workplace atmospheres - Part 1: Gas detectors - Performance requirements of detectors for toxic gases- Type safety monitoring
EN14624	Specifies the requirements for portable locating leak detectors and fixed gas detectors

ORDERING INFORMATION

8033	AT-MC-R290 - Remote Sensor, R290, Pellistor, 0-100% LEL
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ANCILLARIES

8000	AT-MSC--230V - Multi-Sensor Controller 230Vac, inc. Housing & Audio/Visual Alarm Module
8001	AT-MSC--24V - Multi-Sensor Controller 24V, inc. Housing & Audio/Visual Alarm Module
8034	AT-MC-HA - Housing, IP65, RAL7035 94x130x57mm
8078	AT-G-CALHOOD3 - Hose & Hood Kit3 (AT-MC/SC Only)

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